DOCUMENT RESUME

ED 198 050 SO 013 131

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TITLE Competency Testing for Teachers: A Case Study in Economic Education.
PUB DATE 30 Jan 81
NOTE 15p.: Paper presented at Annual Meeting of the Southwest Education Research Association (Dallas, TX, January 30, 1981).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Case Studies: Competence: *Economics Education: Educational Legislation: Elementary Secondary Education: *Knowledge Level: *National Competency Tests: *Social Studies: Teacher Education: Teacher Evaluation: *Teachers: Testing
IDENTIFIERS Test of Economic Literacy: Texas

ABSTRACT

This paper explores problems inherent in requiring elementary and secondary school social studies teachers to teach economics and be tested with regard to their knowledge of economics without requiring any academic preparation in economic education. Information is based on test scores of 34 elementary and secondary school Texas social studies teachers who participated in a 1980 nationally administered Test of Economic Literacy (TEL). Although all teachers in the sample had taken inservice training in economics education in 1979-1980, only 59% of the group had taken formal academic course work in economics. The TEL consisted of 46 questions covering seven broad categories of economics--basic economic problems, economic systems, microeconomics, macroeconomics, the world economy, economic institutions, and concepts for evaluating economic actions and policies. Findings from an analysis of test results indicated that the sample of Texas teachers ranked in the upper 50th percentile when compared to national norms, the mean scores for teachers without economics course work were lower than those for teachers who had economics preparation, high school teachers performed better than junior high and elementary school teachers, and preparation in economics was a more important indicator of test scores than were any other factors relating to teacher background or characteristics. The conclusion is that because teachers tend to know more about a subject in which they have received academic training, state legislatures should provide teacher preparedness in a field before they mandate subjects of study in the elementary and secondary curriculum. (DB)

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COMPETENCY TESTING FOR TEACHERS: A CASE STUDY IN ECONOMIC EDUCATION

A Paper Presented to the
Annual Meeting of the
Southwest Education Research Association

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Dallas, Texas
January 30, 1981

Competency Testing for Teachers: A Case Study In Economic Education

A trend towards mandating content competency testing of preservice and currently employed teachers has gained national momentum. Ten states now require prospective teachers to take either the National Teacher Examination, or other forms of locally developed normed reference tests, while seven other states are currently considering similar legislative requirements (Nothern, 1980). Proposed new certification standards in Texas include content area competency testing before a provisional teaching certificate would be issued. Local school districts in various areas of the country, such as Dallas, Los Angeles, and Pinellas County, Florida, make perspective employees complete evaluation instruments before they are hired. In light of these developments it is evident that through legislative, and other efforts, teachers will have to display a certain degree of content literacy either at the preservice level or on a continuum as employed teachers.

If competency testing takes place, what curriculum areas need to be evaluated? Should subjects considered teaching majors be included, exclusively, in these instruments, or should all teaching areas that are mandated by a state, as part of the total curriculum, be examined? As an example of the complexity of this issue one need only look at the conglomeration of recommended, required course offerings, and legislative mandates in the social studies curriculum in Texas.

Currently, there are five areas of the social studies, career education, crime and drug education, multicultural education, law-related education and economic education, that have been classified as special curriculum concerns. These topics are to be incorporated into social studies programs through individual courses, segments of courses or, as in this case in economic education, through a K-12 integrated curriculum approach (Texas Education Agency, 1980).

Texas is not unique in the integrated curriculum approach. As of 1978 ten states besides Texas required some form of economic education to be infused throughout the social studies curriculum without specific course or classroom work for students (Virginia Department of Education, 1978). This is in addition to thirteen states that have laws requiring the teaching of the Free Enterprise System and twenty-four states that either recommend or require consumer education classes. (Virginia Department of Education, 1978).

If, as previously mentioned, states demand the testing of teachers in their content fields, what kinds of instruments will they use in areas that are mandated to be taught, but are not part of teacher preparation programs? In an effort to assess one area, Economic Education, that fits in this situation, a national survey of Social Studies teachers' economic literacy was undertaken in the summer and fall of 1980. This paper will present a case study of one segment of the sample that participated in the study. Since the Texas legislature, among others, has mandated that Economic Education be taught in all social studies classes, at all grade levels (K-12), without requiring any academic preparation, a measure of teacher understanding and knowledge might be indicative of both the type of content exposure students are receiving in this area as well as teacher literacy.

Instrument

The instrument used in this study, the Test of Economic Literacy Form A, (1979) (TEL) measures knowledge in Economics that might be expected of high school graduates even if they had not taken any courses in Economics. Since all the respondents had at least a Bachelor's Degree, expectations of high achievement were hypothesized.

The test has forty-six questions covering seven broad categories of Economics: (1) Basic economic problems; (2) Economic Systems; (3) Microeconomics; (4) Macroeconomics; (5) The World Economy; (6) Economic Institutions; and (7) Concepts for Evaluating Economic Actions and Policies. Questions on the test varied in level

of difficulty, thinking skills required and type of stimulus material used (graphs and tables). The test was nationally normed with a standard error of measurement of 3.02 and a Cronbach Alpha score of 0.875.

Each of the segments of the TEL can be broken down within distinctive content categories:[1]

A. The Basic Economic Problem

1. Economic wants
2. Productive resources
3. Scarcity and choices
4. Opportunity costs and trade-offs
5. Marginalism and equilbrium

B. Economic Systems

6. Nature and types of economic systems
7. Economic incentives
8. Specialization, comparative advantage, and the division of labor
9. Voluntary exchange
10. Interdependence
11. Government intervention and regulation

C. Microeconomics: Resource Allocation and Income Distribution

12. Markets, supply and demand
13. The price mechanism
14. Competition and market structure
15. "Market failures", information costs, resource immobility, externalities, etc.
16. Income distribution and government redistribution

[1]Taken from the Test of Economic Literacy Discussion Guide and Rationale, by John C. Soper, 1979, published by the Joint Council of Economic Education.

D. Macroeconomics: Economic Stability and Growth

17. Aggregate supply and productive capacity

18. Aggregate demand unemployment and inflation

19. Real and money income, price level changes

20. Money and monetary policy

21. Fiscal policy: taxes, expenditures, and transfers

22. Economic growth

23. Saving, investment, and productivity

E. The World Economy

24. International economics

F. Economic Institutions

G. Concepts for Evaluating Economic Actions and Policies

Economic goals: freedom, economic efficiency, equity, security, price stability, full employment, and growth

Trade-offs among goals

The cognitive skills evaluated in the test have also been sequenced by individual questions:[2]

[2]Taken from the Test of Economic Literacy Discussion Guide and Rationale by John C. Soper, 1979, published by the Joint Council of Economic Education

The cognitive categories are:

1. Knowledge
2. Comprehension
3. Application
4. Analysis
5. Evaluation

Content Categories	Form A						
	Cognitive Categories					No. of Questions	Per Cent
	I	II	III	IV	V		
A 1							
2		1					
3		2					
4			3				
5			19			4	8.7
B 6	4	6					
7	5						
8		7					
9			8				
10							
11			9			6	13.0
C 12		11	14,15				
13			16,17	22			
14		12	20,21				
15		13			23,24		
16	10			18		14	30.4
D 17		33					
18	25			38,39			
19	26,30			27,28	42		
20	31,32	34					
21			37	40,41			37.0
22		35					
23		36				17	
E 24		43				1	2.2
F		44,46				2	4.3
G					29,45	2	4.3
Total Number of Questions	10	12	11	8	5	46	100.0
Percent	21.7	26.1	23.9	17.4	10.9	100	

As can be noted, this instrument measures a wide range of topics and a diversity of cognitive abilities.

Demographics:

The sample consisted of thirty-four elementary, middle and high school social studies teachers from a mid-sized West Texas community. The city has a population of over 100,000. There are two high schools, three middle schools, and twelve elementary schools within the independent school district boundary.

All the members of the sample had current social studies teaching responsibilities. While only 59% of the group had taken formal academic course work in economics, all had been required to take inservice training in economic education during the past two years (1979-80). Other sample demographics included:

1. Teacher Experience

Years Teaching	Number of Teachers	
0- 5	6	17.6%
6-10	8	23.5%
11-15	6	17.6%
16-20	10	29.4%
Over 20	4	11.7%
Total	34	100%

2. Education Attained

Bachelor's Degree	21	61.7%
Bachelor's Degree Plus 15 Hours	2	5.8%
Master's Degree	11	32.4%
Total	34	100%
Master's Degree Plus other graduate hours	4	11.7%

3. Level of Teaching

Elementary School (1-5)	5	14.7%
Middle School (6-8)	11	32.4%
High School (9-12)	18	52.9%
Total	34	100%

4. Undergraduate Courses Taken in Economics

Course Taken	N	
None	11	32.4%
One	15	44.1%
Two to Four	7	20.6%
More than Four	1	2.9%
Total	34	100%

It should also be noted that those participating in the survey were volunteers.

Test Results

Results of the testing include:

1. Scores / Frequency

Scores	Frequency
4	1
8	1
13	1
14	2
16	1
17	1
18	1
19	2
20	1
22	1
25	1
26	4
27	3
28	1
29	1
30	1
31	3
32	1
36	2
37	1
40	2
41	1
45	1
Total	34

2. Descriptive Statistics for overall sample

Range = 04 - 45

$\bar{m}$ = 25.1

Standard Deviation = 9.73

3. Descriptive Statistics for those taking course work in Economics as opposed to these with no course work

A. N = 20 with Economics

$\bar{m}$ = 27.9 with Economics = 53% on national percentile norm

Range = 19.8 - 45

Standard Deviation = 8.24

B. N = 14 with no economics

$\bar{m}$ = 21.1 with no economics = 65% on national percentile norm

Range = 04 - 32

Standard Deviation = 10

4. Level of Teaching with Mean Scores and Standard Deviation

		$\bar{X}$	S.D.
Elementary School	5	24.4	7.
Middle School	11	28.1	5.3
High School	18	31.2	7.7
Total	34		

5. Courses Taken in Economics with Mean Scores and Standard Deviation

Courses Taken	N	$\bar{X}$	S.D.
None	11	14.7	4.45
One	15	28.8	5.7
Two to Four	7	32.28	5.8
More than Four	1	45	
Total	34		

6. ANOVA Comparison of Mean Scores by Elementary, Middle and High School Levels

Source	DF	SS	MS	F-Ratio	F-Prob
Between	23	9.819	.427	1.766	0.1758
Within	10	2.417	.242		
Total	33	12.236			

7. ANOVA Comparison of Mean Scores by Subjects taught-either social studies or other subjects

Source	DF	SS	MS	F-Ratio	F-Prob
Between	23	23.392	1.017	1.327	0.3307
Within	10	7.667	.767		
Total	33	31.059			

8. ANOVA Comparison of Mean Scores by those with Economics Preparation

Source	DF	SS	MS	F-Ratio	F-Prob
Between	23	5.549	0.241	4.8	0.05
Within	10	2.833	0.283		
Total	33	8.382			

This probability is considered significant at the .05 level. For persons who reported preparation (1 or more courses) in Economics. It also can be associated with higher mean scores on the Test of Economic Literacy.

Analysis of Results

The following conclusions may be drawn from the results of this administration of the TEL:

1. The sample, as a whole, ranked in the upper fiftieth percentile when compared to national norms.

2. The mean scores for the teachers who did not have economics coursework were lower than those who had Economics preparation, 27.9 $\bar{m}$ versus 21.1 $\bar{m}$.

3. The higher the level of teaching the higher the mean scores.

4. The more courses taken in Economics the higher the mean scores.

5. An analysis of variance of mean scores with several divergent factors indicated that, of those factors investigated, the only significant event (at the .05 level) was preparation in Economics.

Conclusions

Although this sample was small, made up of self-selected volunteers who were voluntarily participating in preschool inservice activities and did not use a comparison of all those teaching social studies within this district, it does offer an indication of teacher understanding of economic material in an evaluation situation. The ability of those with an economics background to score higher than those who do not have this type course work can not be considered unusual. Equally unrevealing is the ANOVA significance of teachers' scores in these categories.

The notion of those teaching in higher grades doing better than those in lower grades however, is important. Social studies, at the elementary level, is not taught with unyielding enthusiasm. Not understanding a subject such as Economics will only reinforce the avoidance notion in regard to social studies from one who does comprehend the basic concepts of that subject.

Equally disheartening is the type of question, by cognitive category, that the teachers missed:

Number of questions available - 1,564

Cognitive Level	N of questions	N questions missed	Percentile
1	10	141	9.1%
2	12	144	9.3%
3	11	117	7.5%
4	8	133	8.6%
5	5	116	7.5%

As can be noted the lower the cognitive level the more, and at a greater percentage, the number of questions missed. This seems to indicate a basic misunderstanding of the economic concepts that were tested.

Taking these results in their broadest perspective, the question posed at the beginning of this paper, namely, what are the content areas to be included in teacher competency testing, remains unanswered. From these results it is obvious that the mere mandating of a subject will not provide teacher preparedness in that field.

Do we expand teacher education preparation programs to include classes in all the mandated curriculum areas? Should we eliminate several of these from the curriculum? Can reform in certification procedures eliminate some teachers with low scores by only allowing those with sufficient background to teach them?

All of these questions have both political as well as educational overtures. In an era when state legislatures seek expenditious solutions, that are often simplistic at best, can we expect anything better than requiring teacher testing without parellel course work preparation? Analyzing whether or not teacher is or is not prepared in their teaching assignments is a difficult proposition. If we really wanted to remedy teacher competency problems, a series of diagnostic procedures, early in a teacher education program, would be established. Based on these, prescriptive coursework to remedy deficiencies could be individually developed. Only then would we truly attack the problem of knowledge illiteracy instead of merely collecting statistics about it. Perhaps then Colleges of Education could perfect effective remedial models for the public schools.

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